Environmental Mitigation Plan for Goods Movement in Southern California

Public Meeting

June 04, 2007

Project Objectives

- Identify potential emission reduction strategies for goods movement
- Estimate emission reductions, costs, and cost-effectiveness of each strategy
- Assess feasibility, timeline, barriers to implementation, and acceptability to stakeholders
- Prioritize strategies and quantify what could be accomplished with given investment
- Support achievement of NAAQS; provide input to AQMP, SIP, and SCAG RTP updates

Project Tasks

- Literature Review
- Analysis of Strategies
- Outreach
- Develop Action Plan

Emissions Reduction Targets for PM2.5 and 8-hour Ozone Attainment

Tons Per Day And % Reduction

	2014	2023
NOx	203 (31%)	383 (76%)
VOC	59 (11%)	116 (22%)
SOx	24 (56%)	----
PM2.5	14 (14%)	----

Source: Draft AQMP

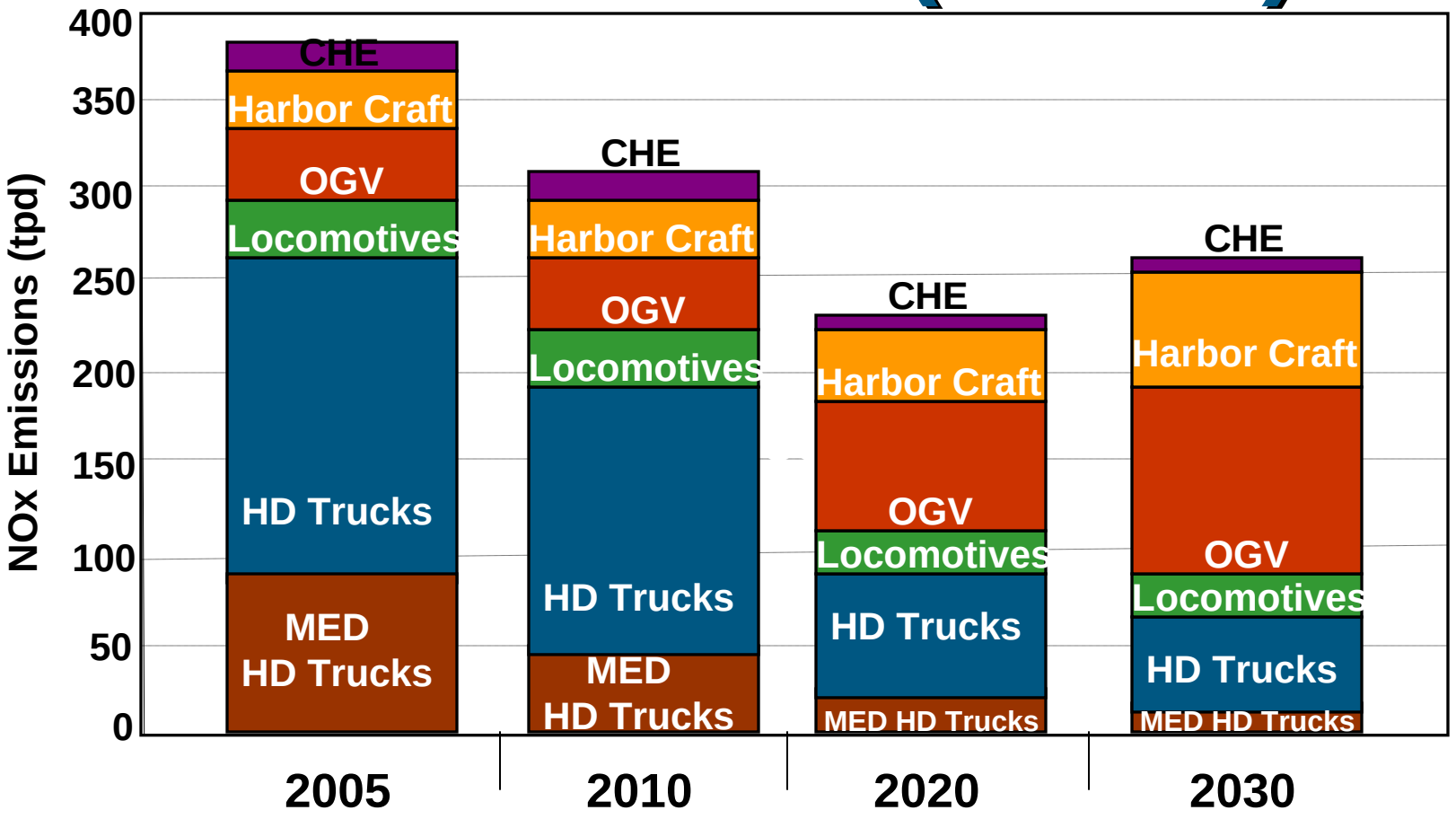
Summary of Baseline Emissions

(tons/day)

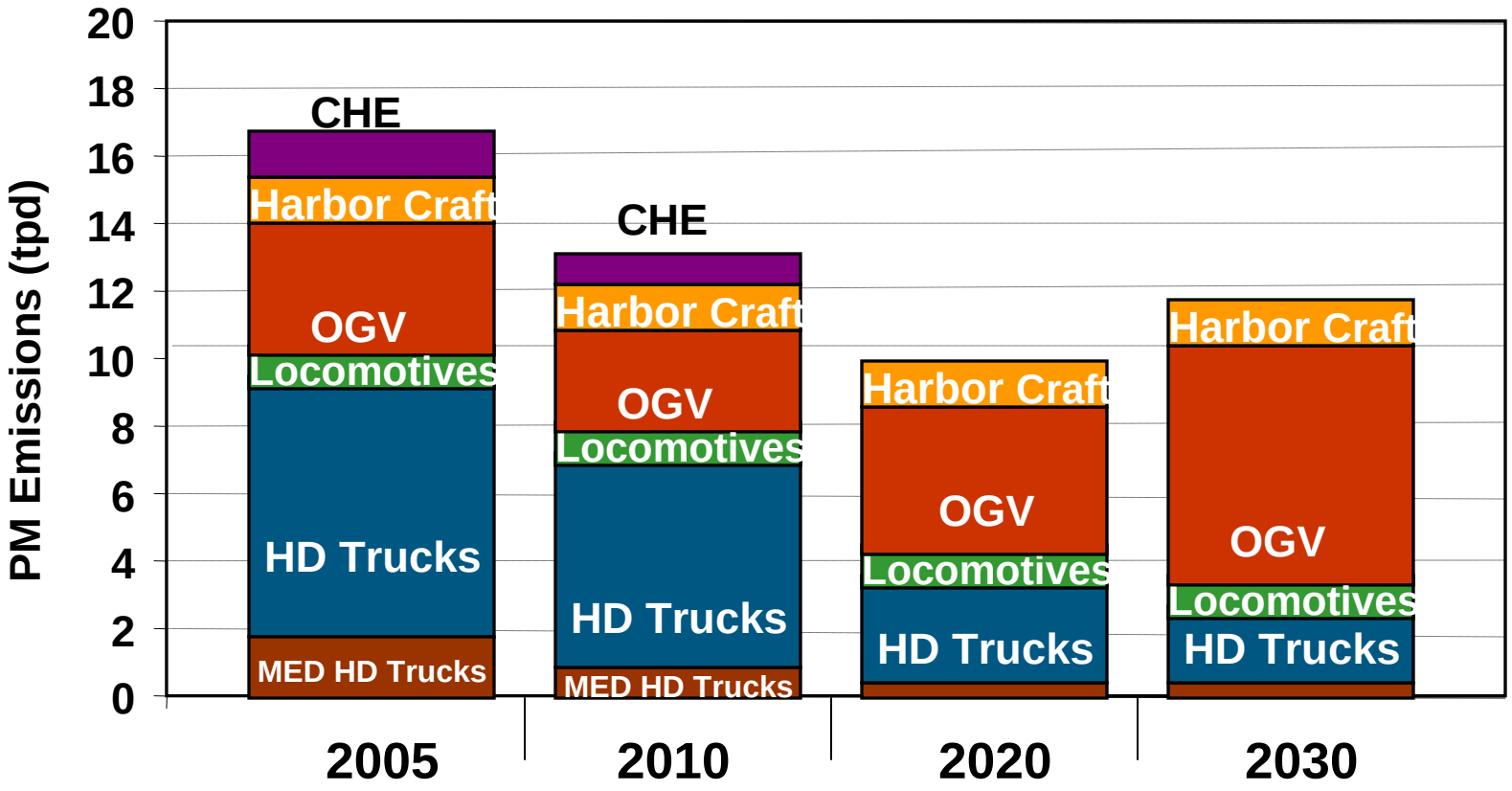
	2002 (Base Year)	2014	2020	2023
NOx	1078	653	506	506
VOC	897	528	495	495
PM 2.5	99	102	105	105

Source: Final Draft AQMP

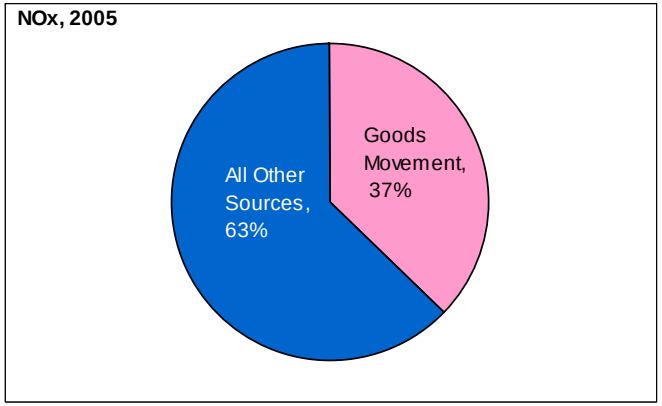
Baseline Goods Movement NOx Emissions (SoCAB)

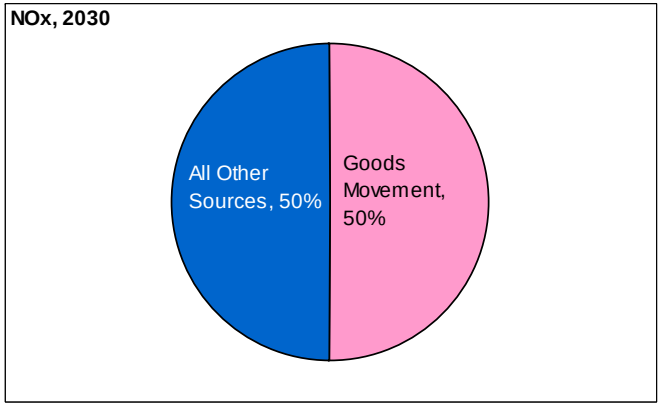


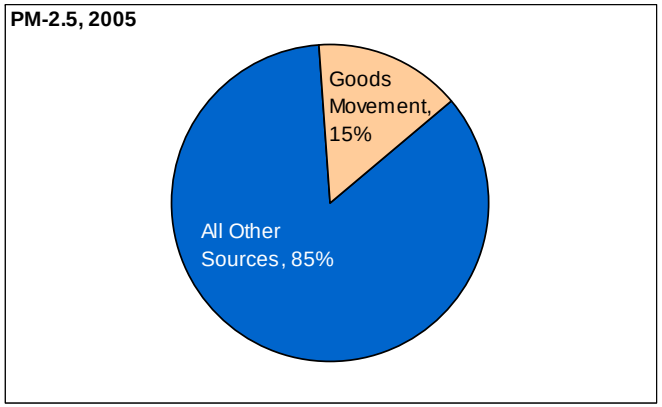
Baseline Goods Movement PM Emissions (SoCAB)

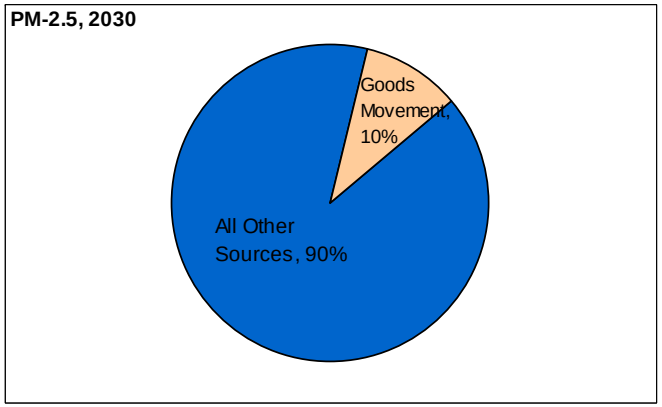


Baseline Goods Movement Emissions (SoCAB)









Types of Emission Reduction Strategies

Engine, Equipment, Fuel Strategies	Operational Strategies
• New standards	• Speed changes
• Replacement (scrappage)	• Idle reduction
• Repower	• Mode shift
• Retrofit	• Efficiency improvements
• Alt. Fuels	

Types of Emission Reduction Strategies, cont.

Regulatory / Enforceable Strategies

- State/local rules & regulations
  - Technology-based
  - Performance-based
- Federal or international rules & regulations
- Lease agreements
- Enforceable agreements

Voluntary Strategies

- Incentives
  - Monetary
  - Non-monetary
- Contracting mechanisms
- Education and leadership
- Cost-savings

HD Truck Strategies

- Truck Replacement
- Retrofit with DOC
- Retrofit with FTF
- Retrofit with DPF
- Repowering
- Virtual Container Yard
- Expanded Incident Management for Truck
- Expansion of PierPass

Railroad Strategies

- APU Hybrid Locomotive (Green Goat)
- Retrofit with DOC
- Retrofit with DPF
- Retrofit with SCR
- New Emission Standards
- Electrification of Alameda Corridor
- Locomotive Idle Reduction
- Expansion of On-Dock Service
- Expansion of Near-Dock Service
- Inland Rail Improvements
- Grade Crossing Separation

Analysis for Year 2020

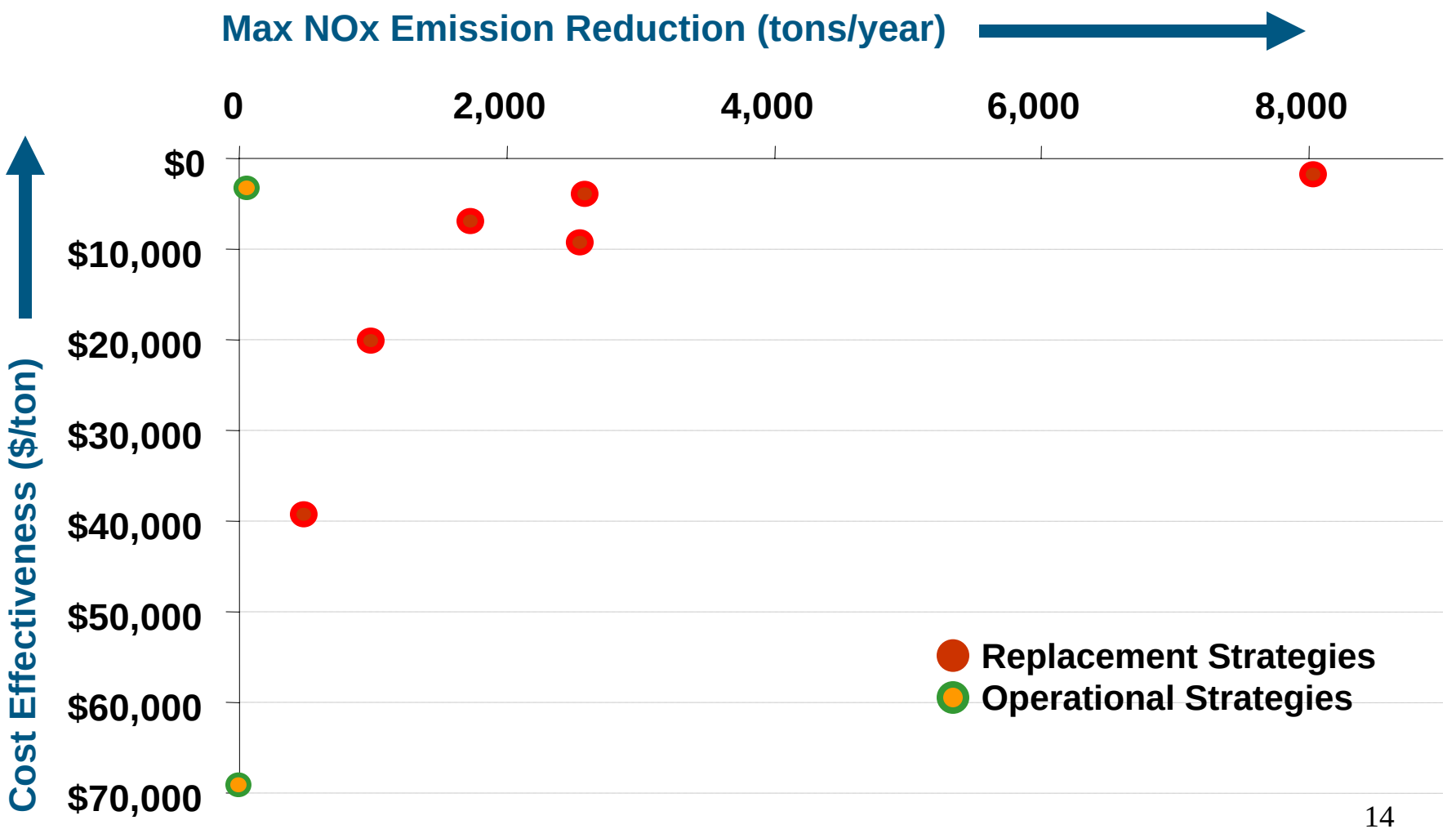
NOx Reductions From Various Truck Strategies

NOx Reductions From Various Rail Strategies

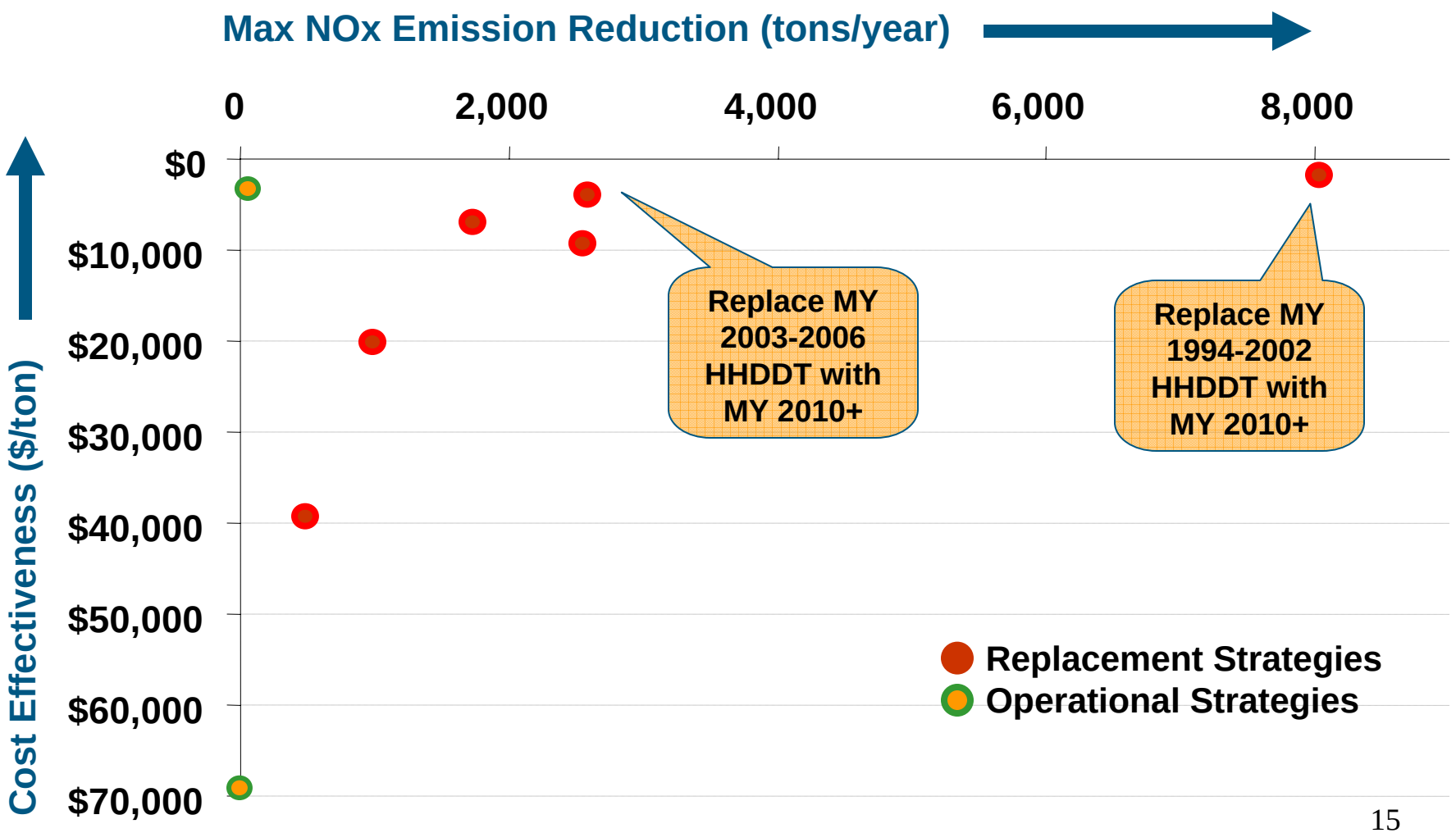
PM Reductions From Various Truck Strategies

PM Reductions From Various Rail Strategies

NOx Reductions – Truck Strategies (2020)



NOx Reductions – Truck Strategies (2020)



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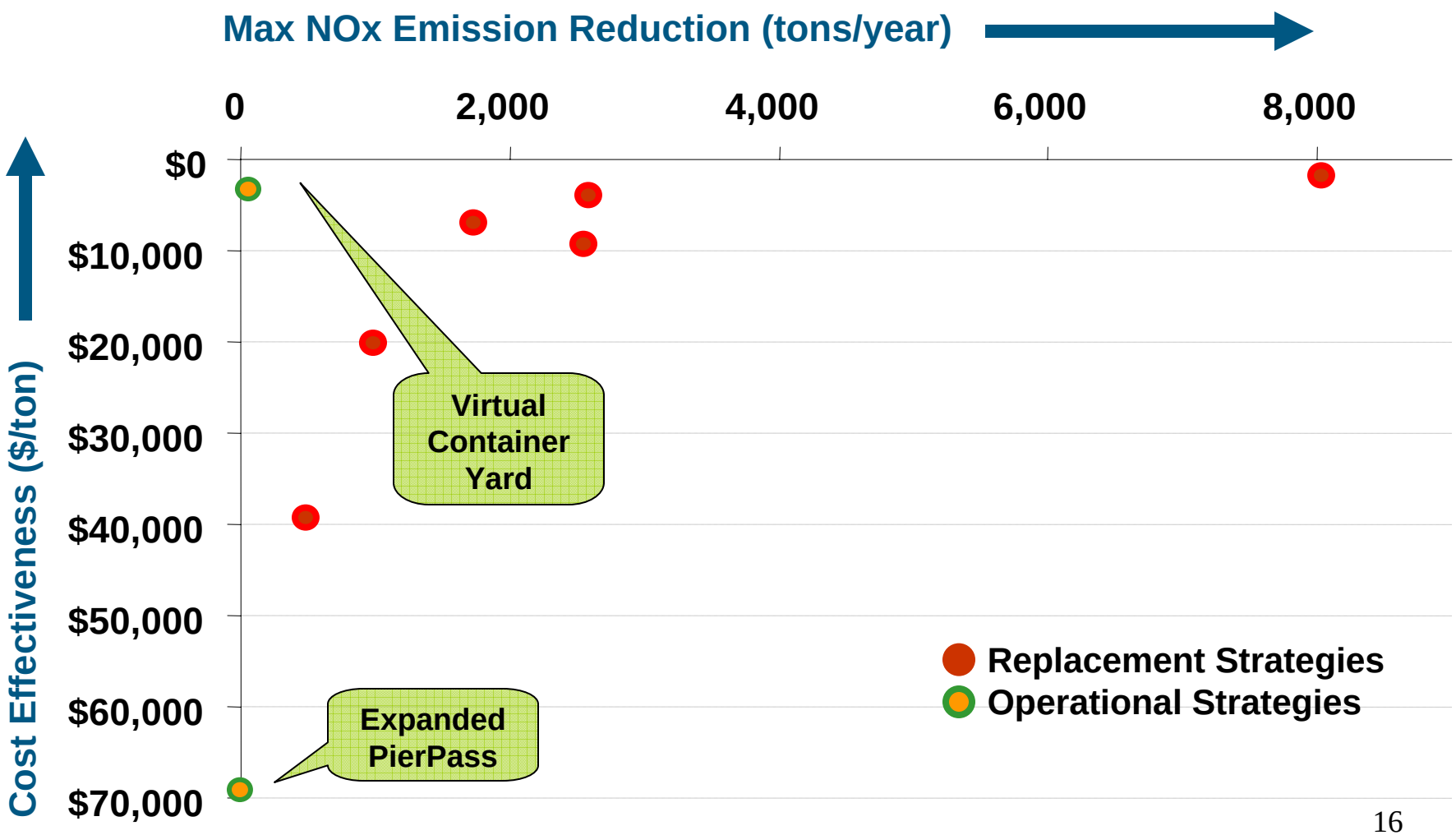
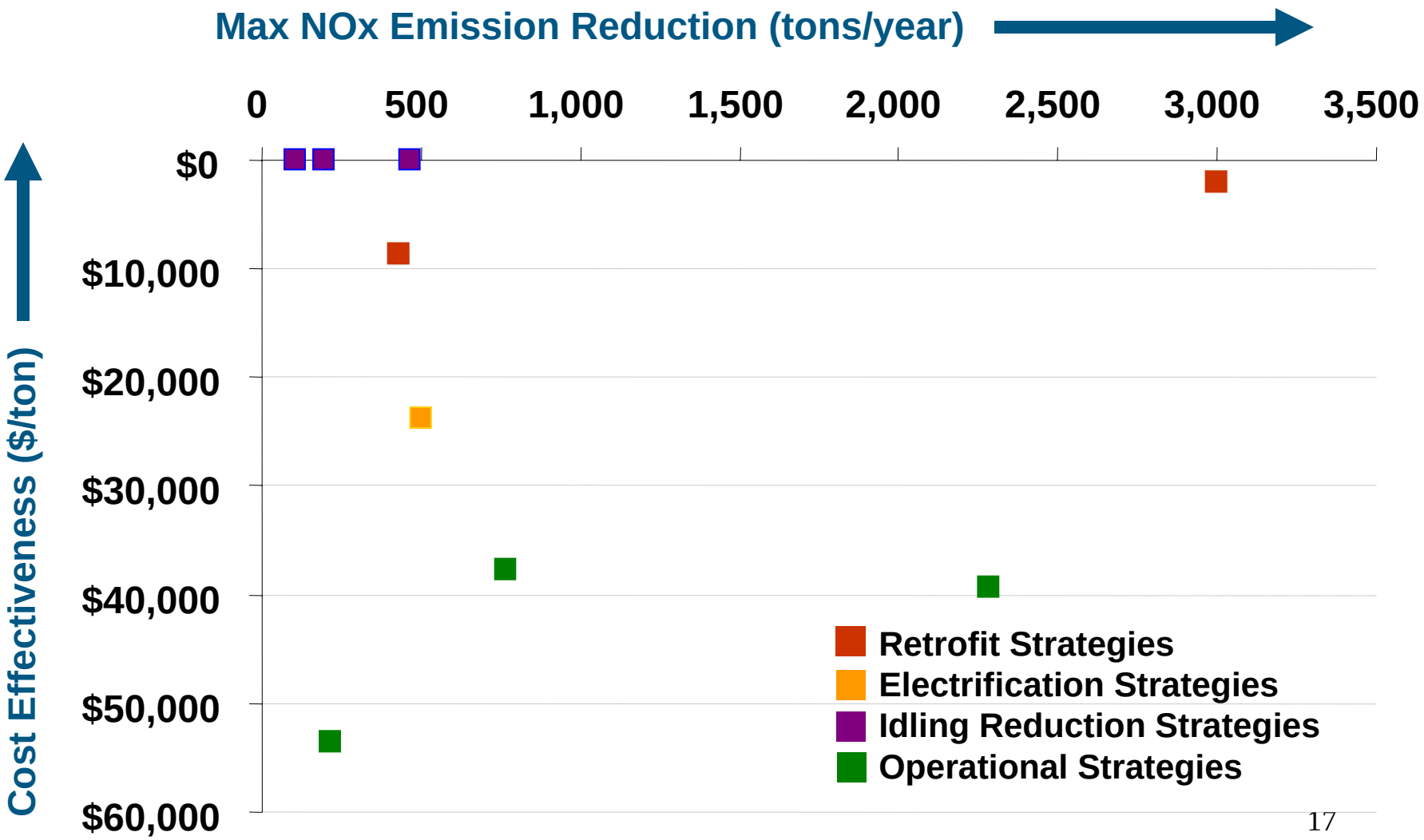


NOx Reductions – Rail Strategies (2020)



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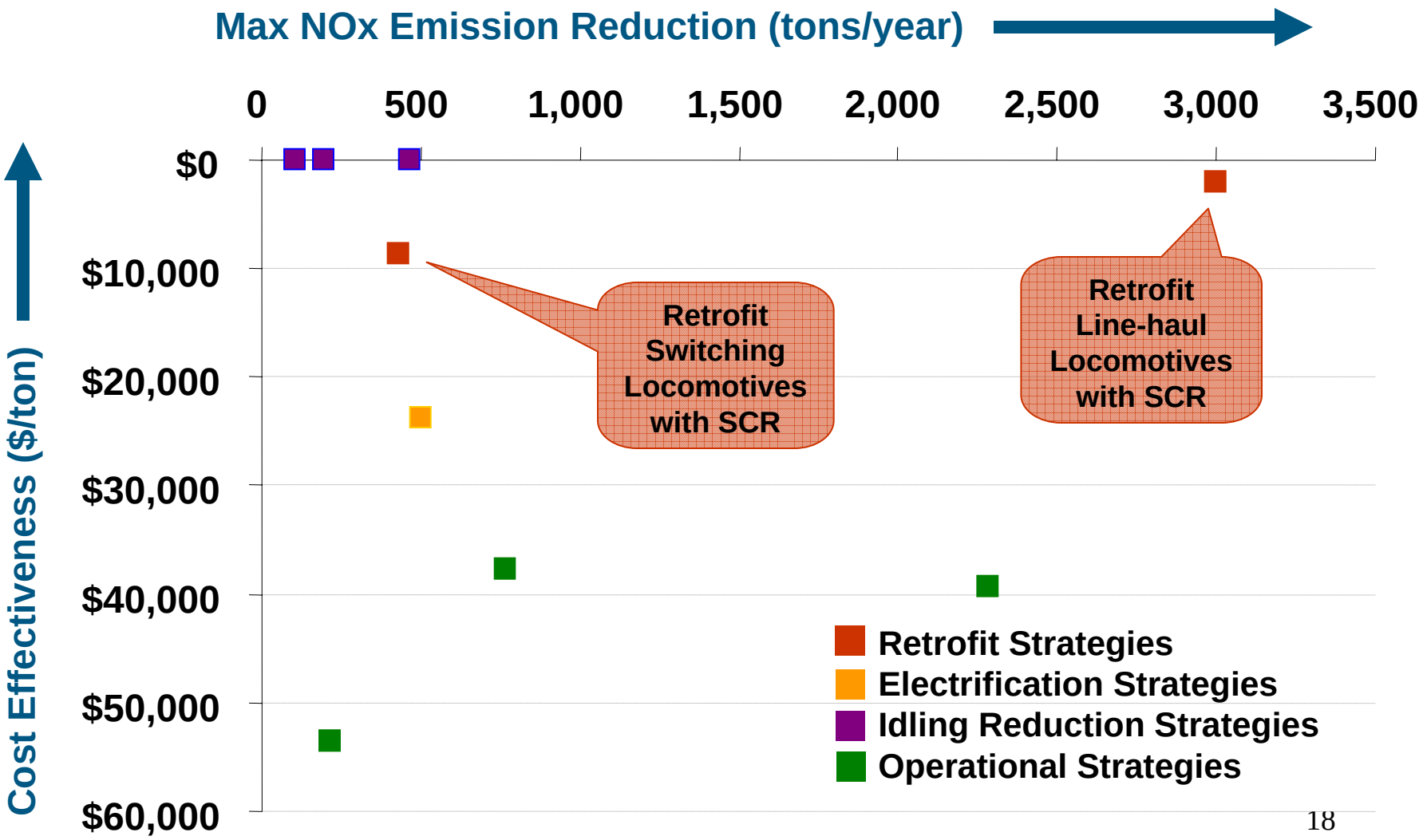

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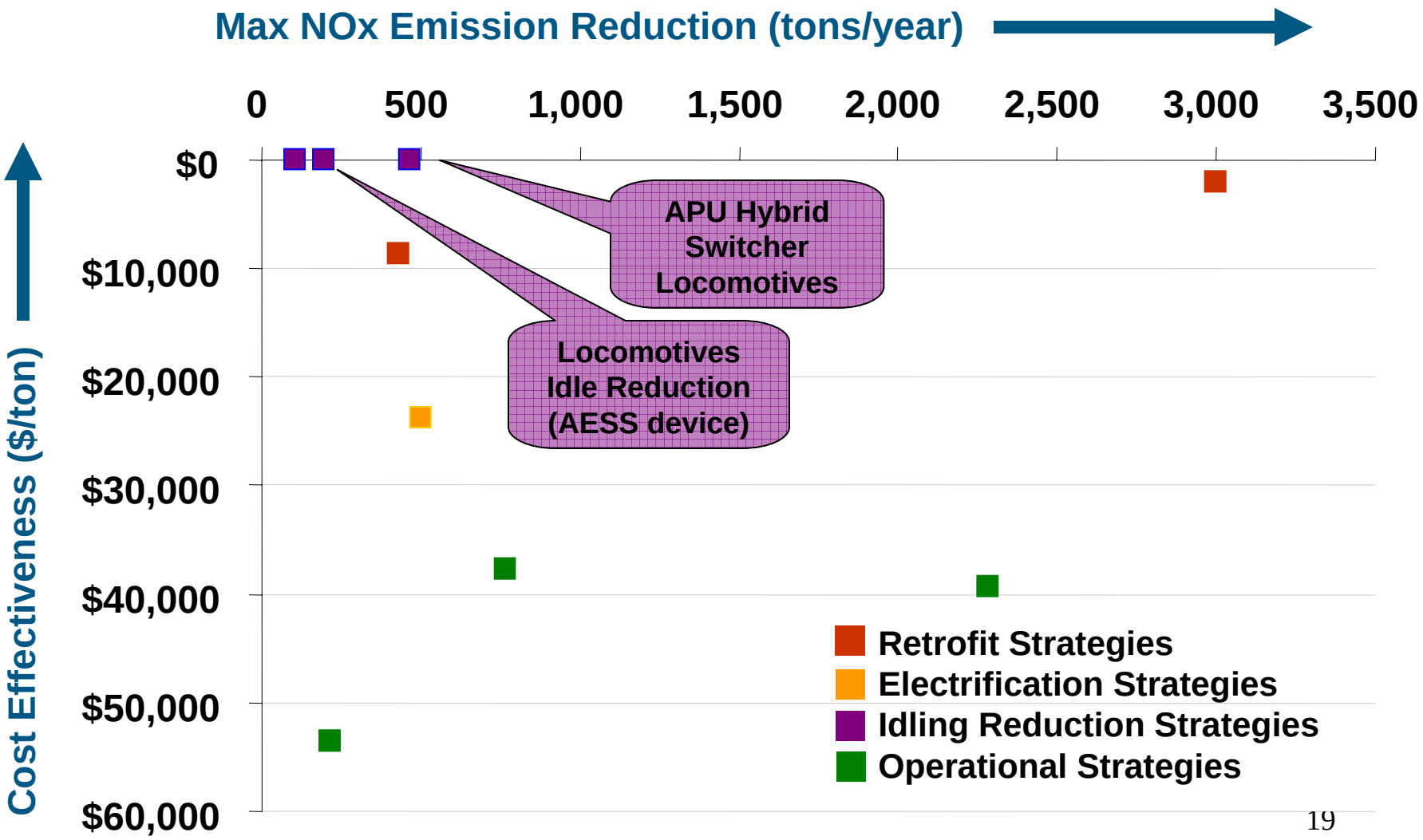

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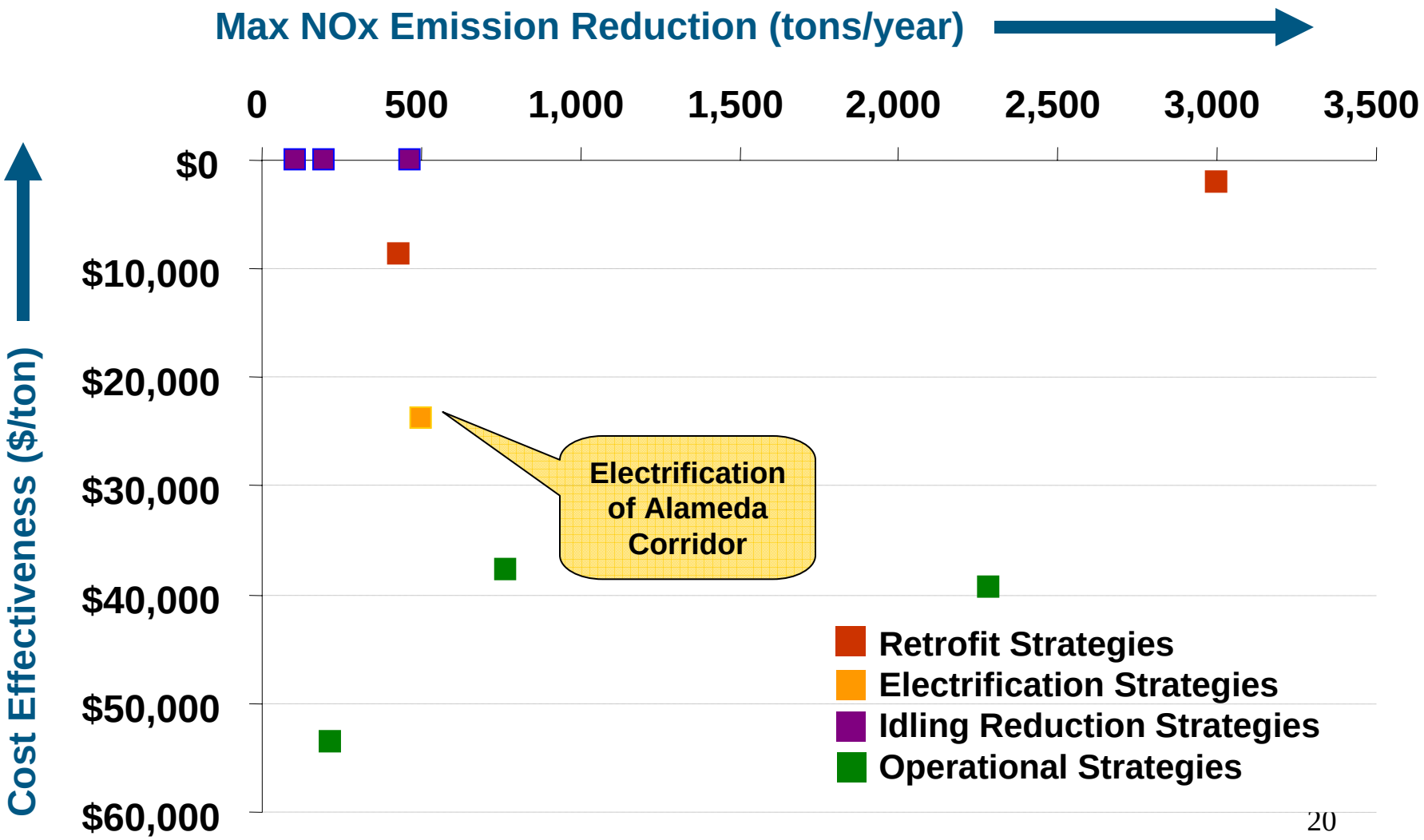

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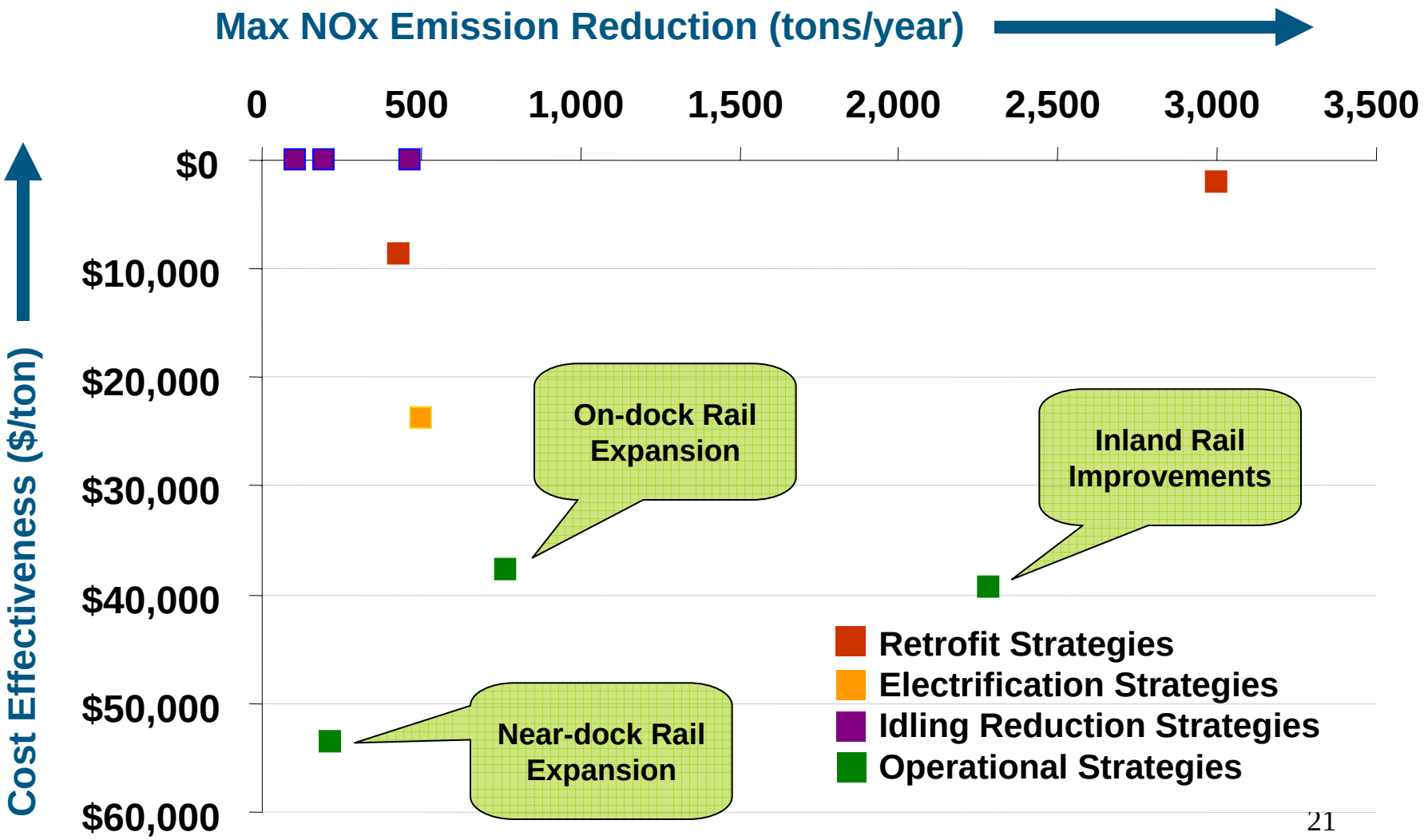

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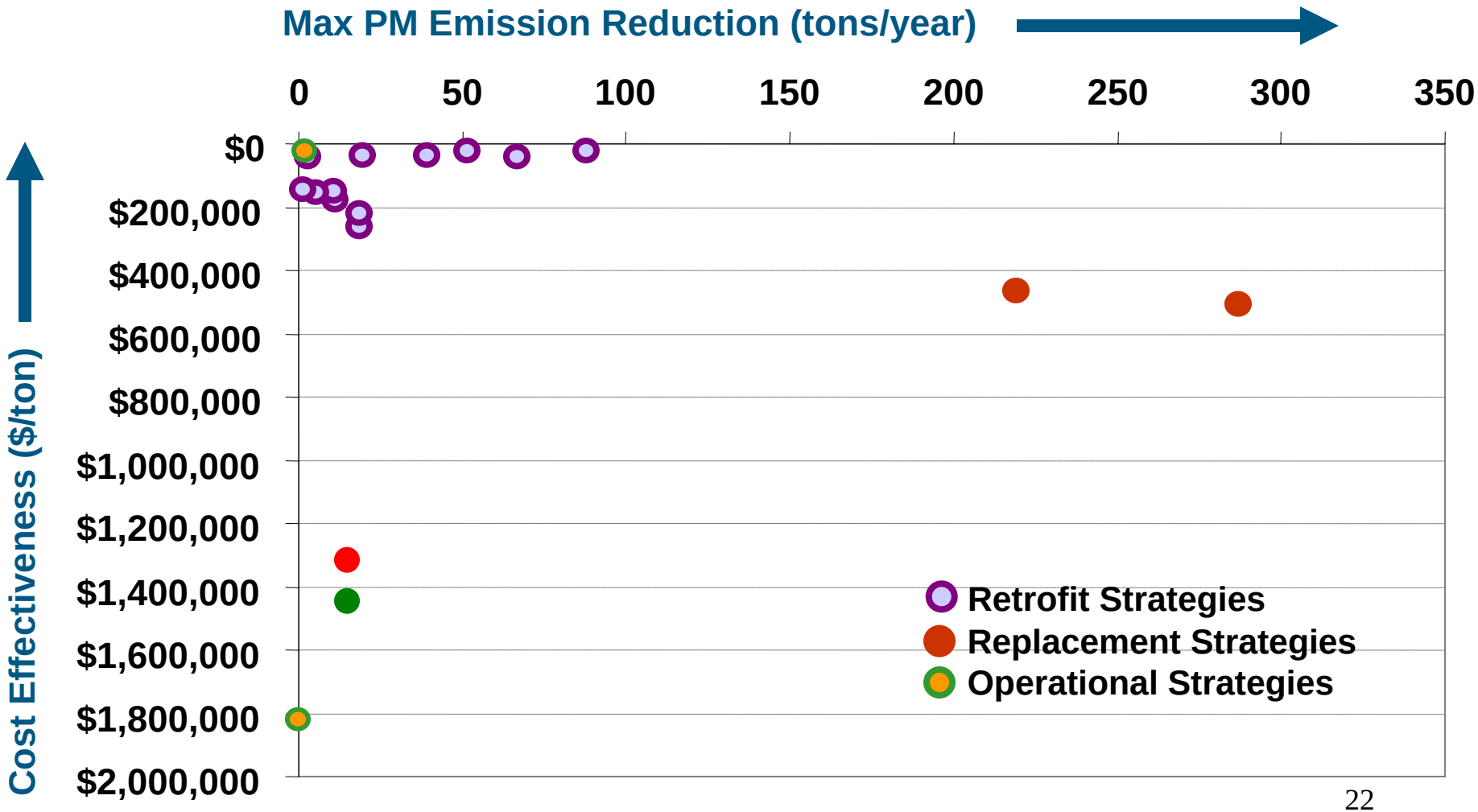

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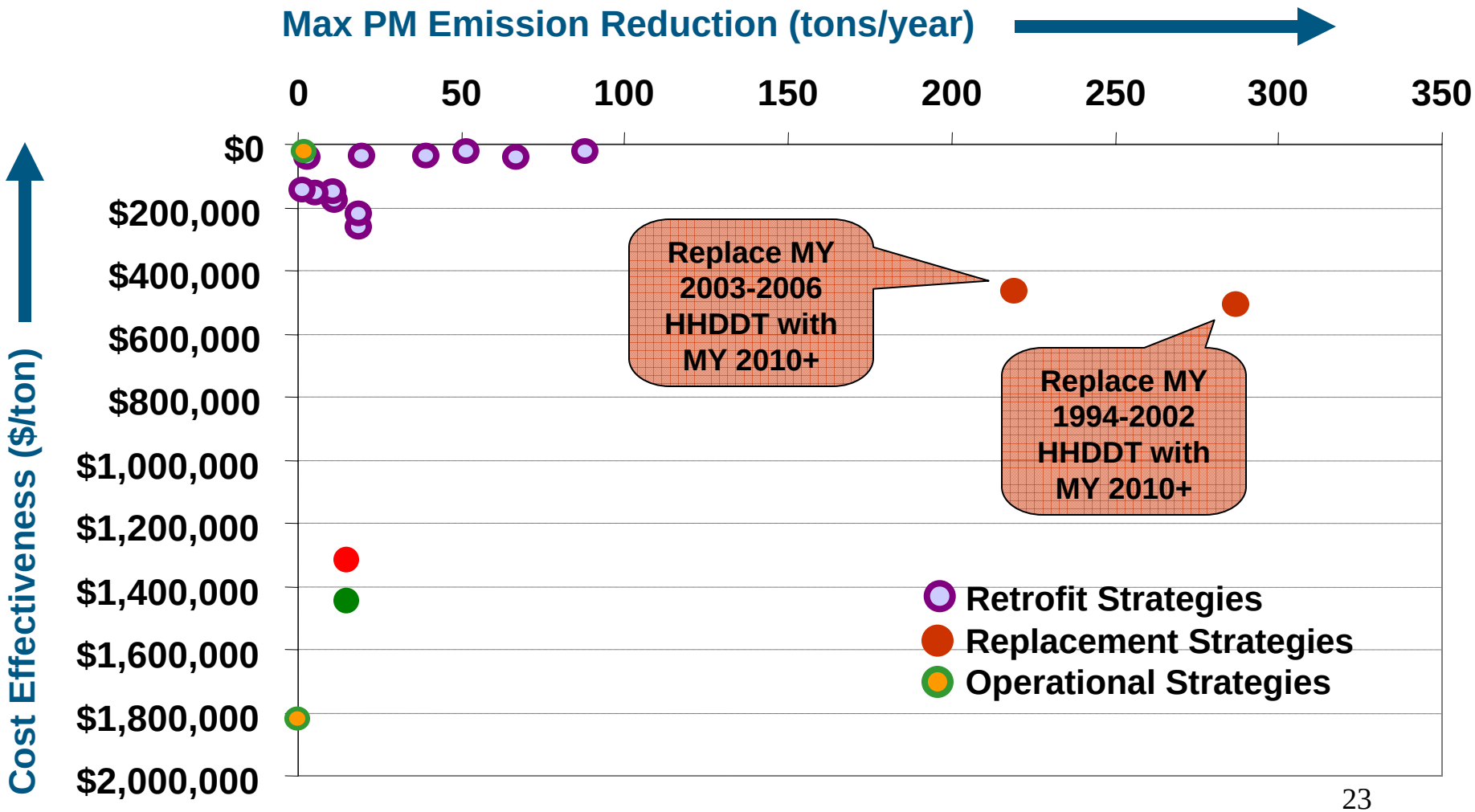

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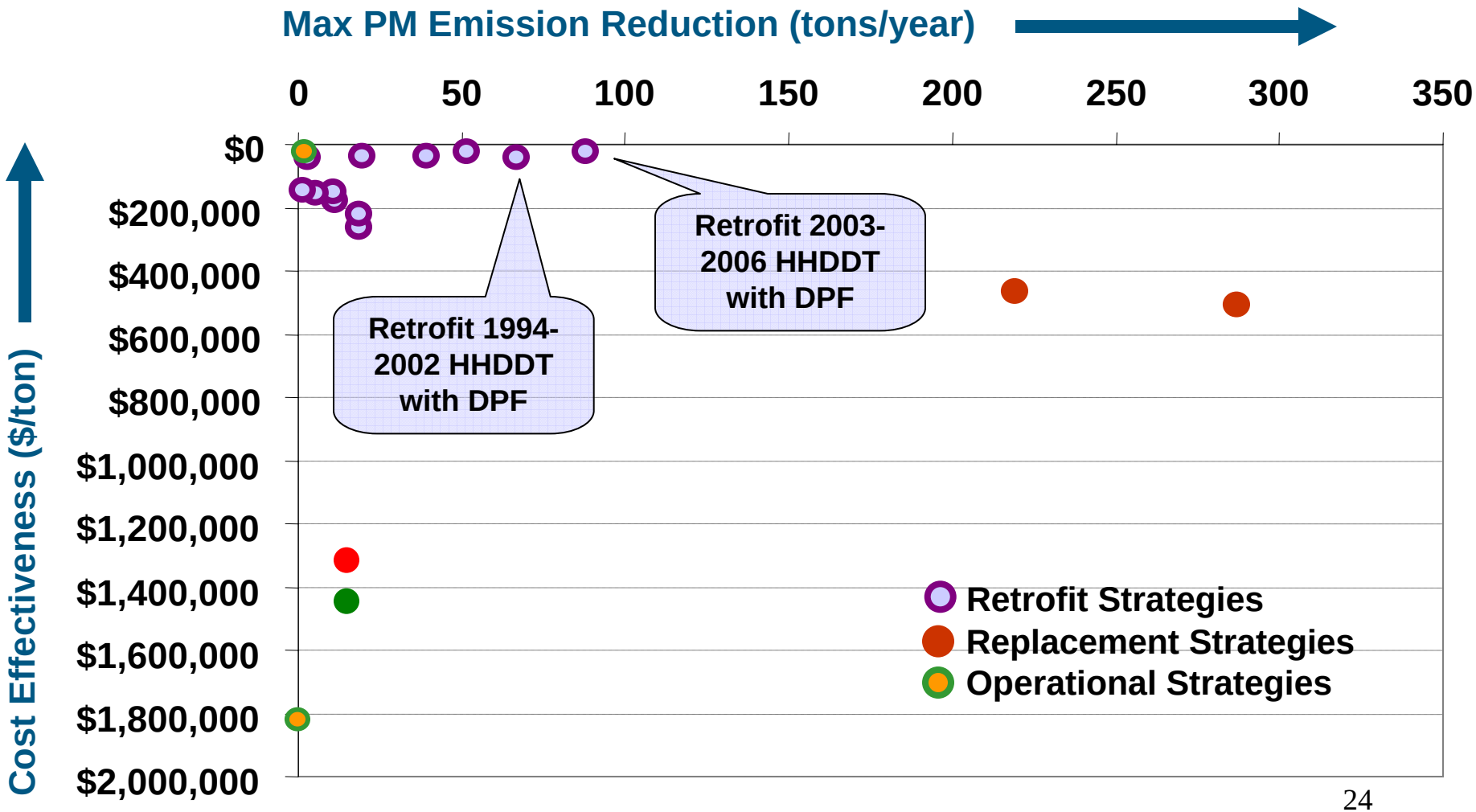

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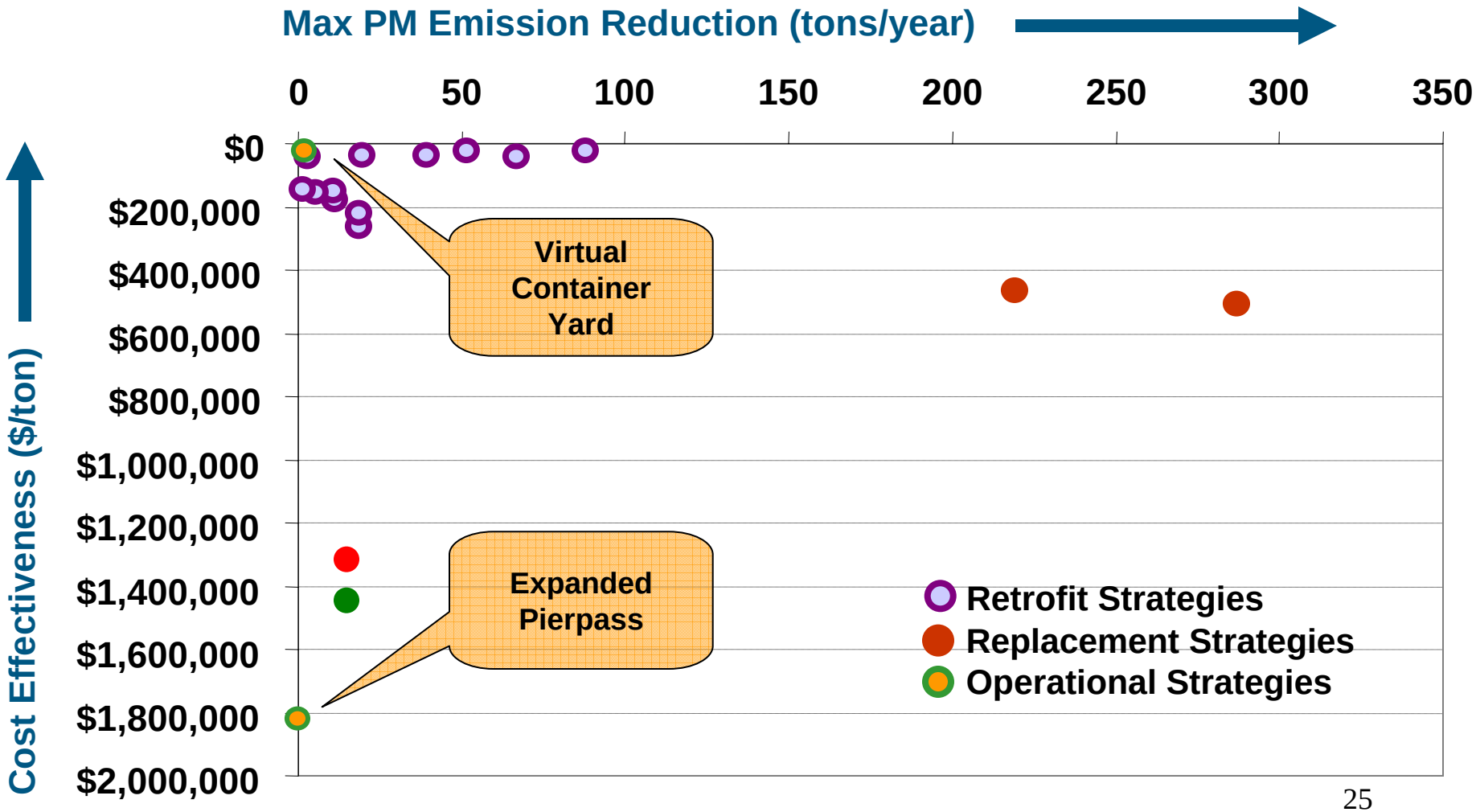

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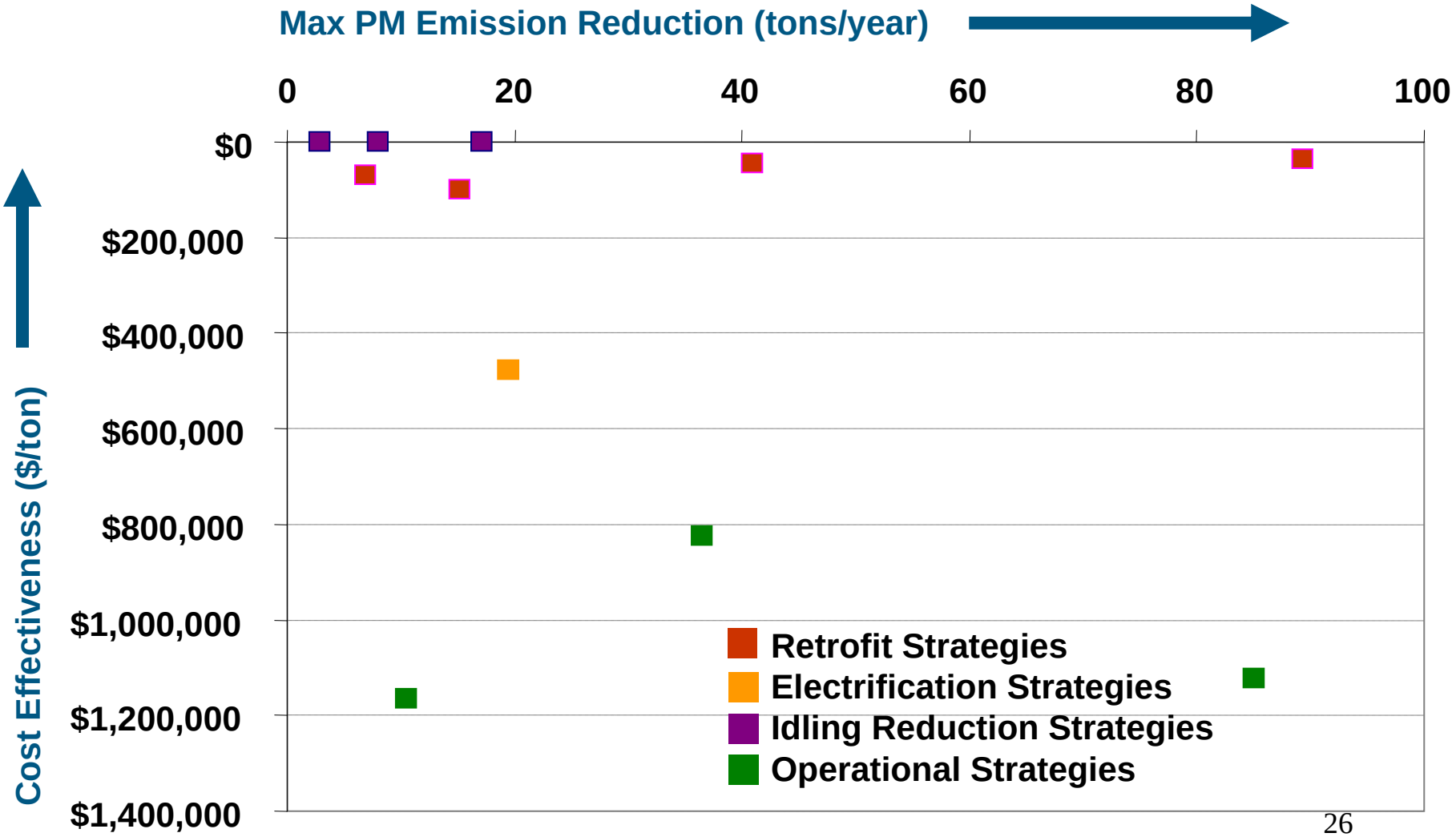

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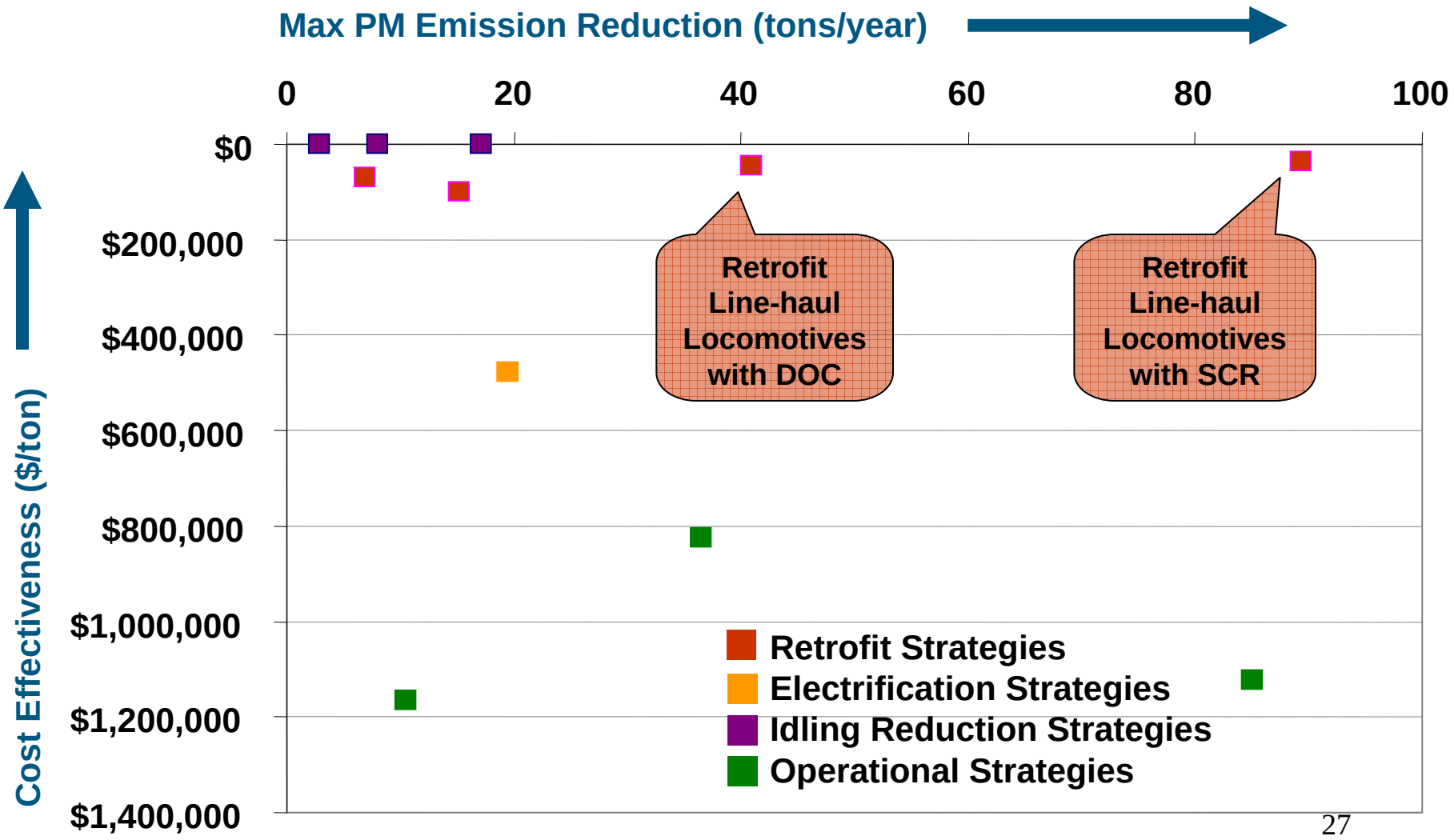

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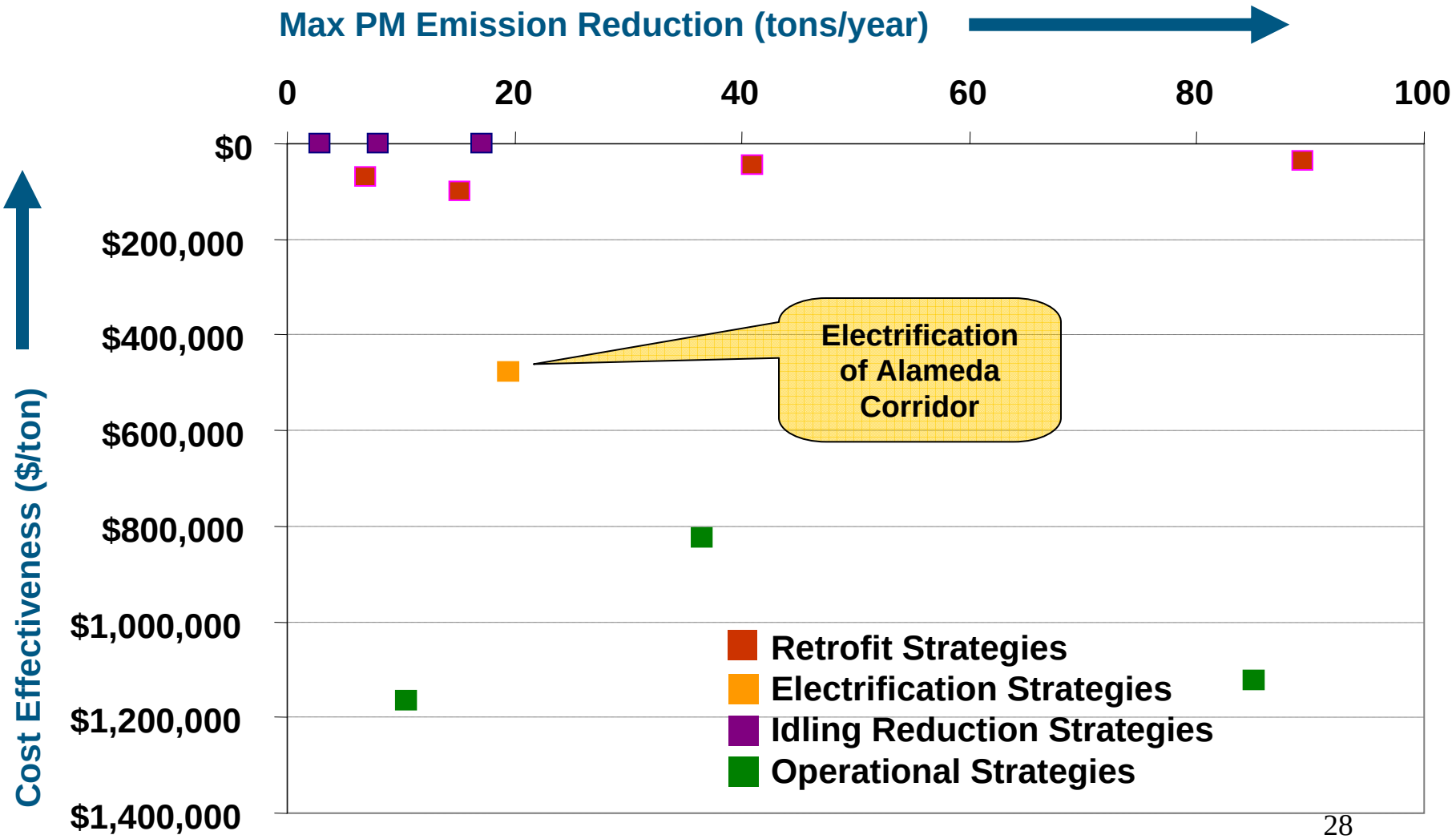

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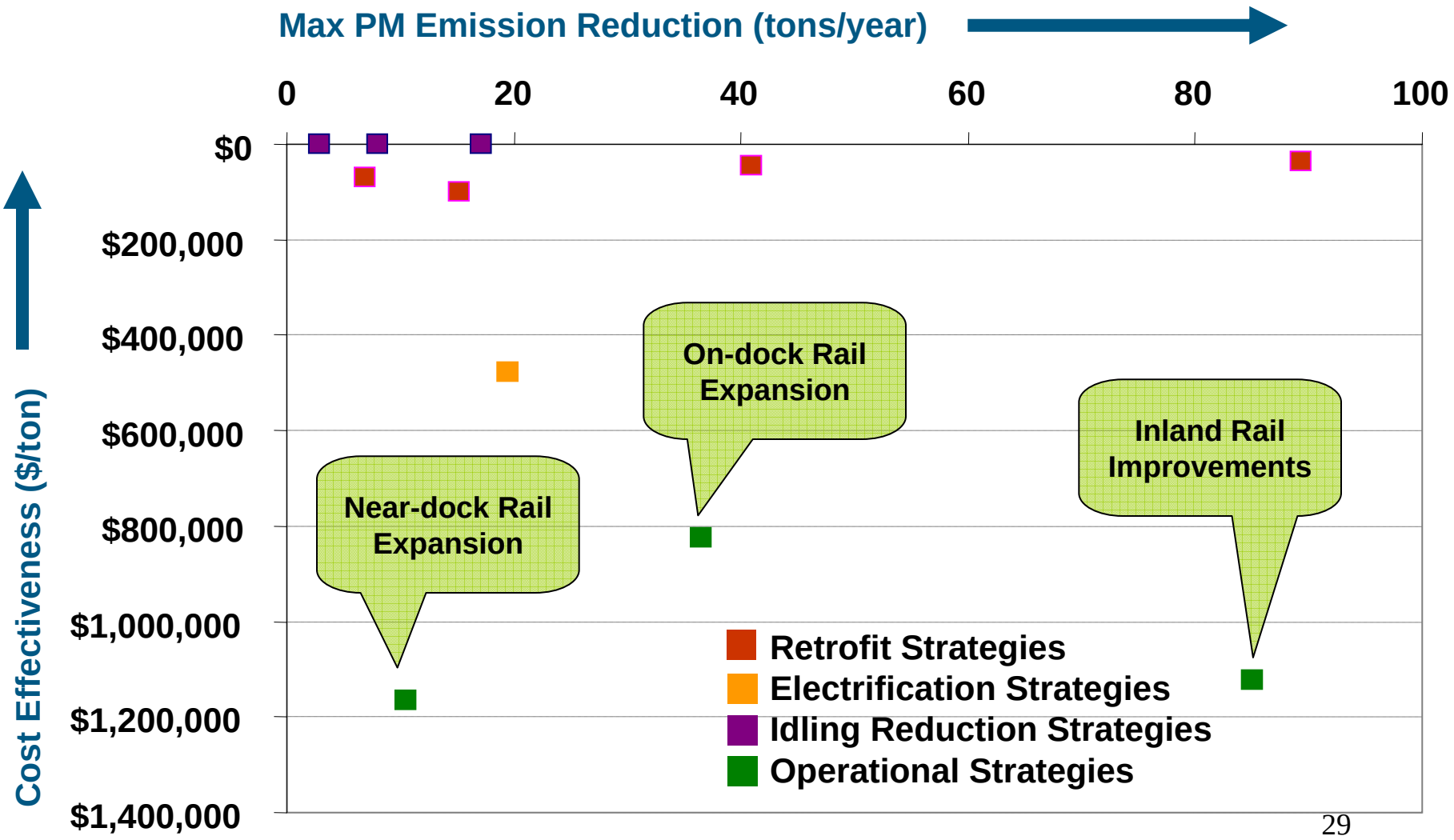

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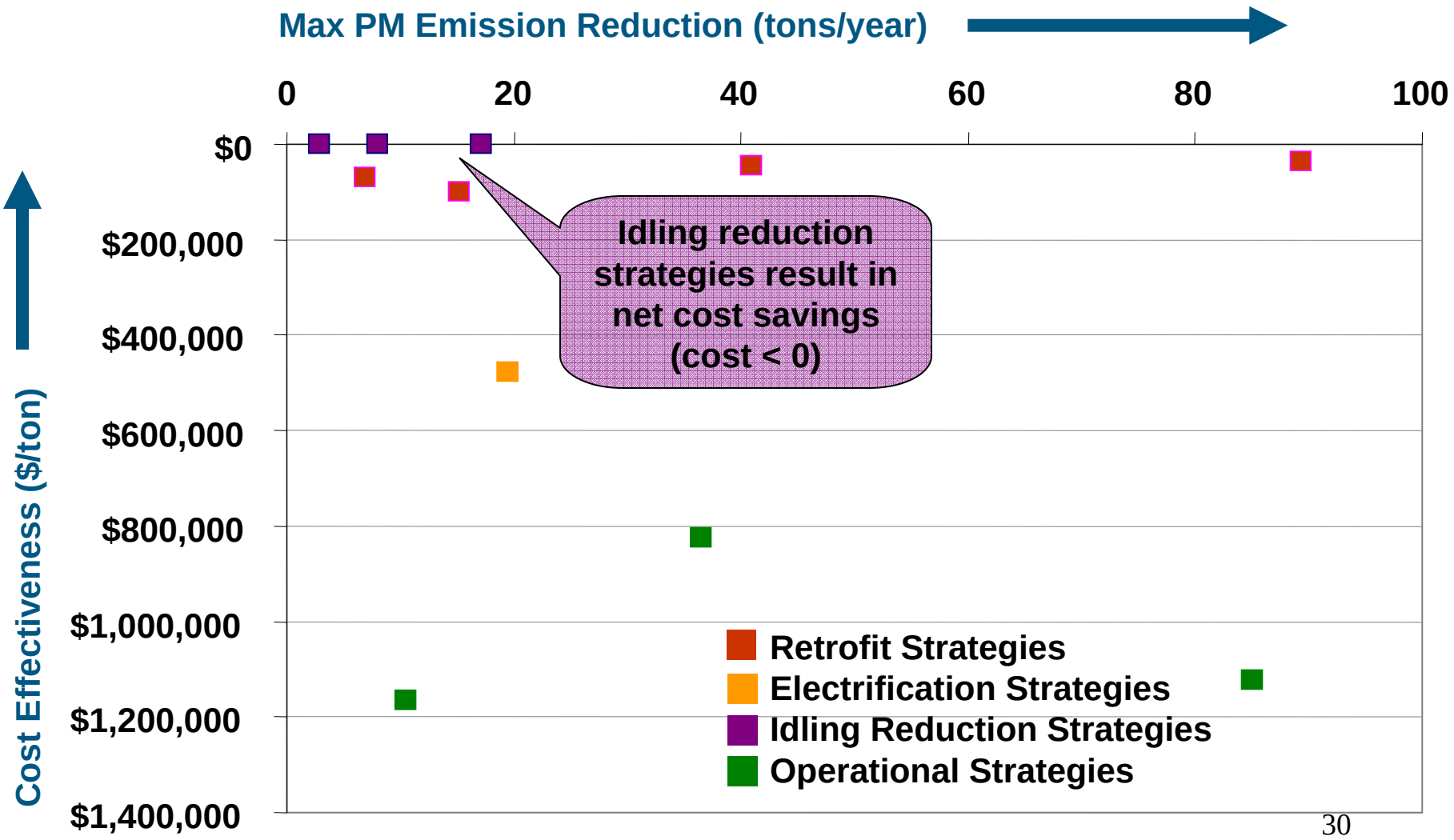

Ocean-Going Vessel Strategies

- OGV Speed Reduction
- Cold Ironing (shore power)
- Expanded Aux Engine Fuel Requirements
- Main Engine Fuel Requirements
- OGV Engine Improvements: Slide Valve Injectors
- Crane Double Cycling

Harbor Craft Strategies

- Emulsified Fuel
- Biodiesel
- Retrofit with Emission Controls (DOC, DPF, SCR)
- Shore Power for Harbor Craft
- Repowering

Cargo Handling Equipment Strategies

- Engine/Equipment Replacement
- Alternative Fuels (LPG, LNG, Electrification)
- NOx Control Retrofits

Next Steps

- **Conduct Outreach Workshops**
  - Gov't agencies, industry, interest groups
  - Input on strategy feasibility and priorities
- **Conduct Analysis of Additional Strategies**
  - Selected operational strategies identified by SCAG
- **Develop Action Plan**
  - Identify top priorities for near term (2010) and longer term (2020)
  - Determine total feasible emission reduction and cost
  - Examine key implementation barriers